REMARKS

Favorable reconsideration of this application is respectfully requested in view of the following remarks.

By way of this Amendment, new dependent Claims 33-37 are presented for consideration and Claims 1-6 remain canceled. Thus, the claims currently pending in this application are Claims 7-37, with Claims 7, 20 and 28 being the only independent claims.

Independent Claim 7 is directed to a method of manufacturing a carrier that is adapted to rotatably support rotating bodies between a pair of flanges. The method involves forming material into the shape of a cup having an opening, and closing off the opening of the cup to integrally form a pair of flanges opposed to each other and adapted to rotatably support rotating bodies between the flanges and joints connecting the flanges.

The Official Action sets forth an anticipatory rejection of independent Claim 7 based on the disclosure contained in U.S. Patent No. 5,292,292 to *Heinrich et al.* This document discloses an epicyclic gear train planet carrier that includes a central portion 22 and four strip portions 23 extending outwardly from the central portion 22. The central portion 22 is provided with four mounting holes 12 and each of the strip portions 23 is provided with a respective mounting hole 14. The central portion 22 and the four strip portions 23 are formed from a shaped flat sheet metal blank. The blank is folded twice by bending the strip portions 23 relative to the central portion 22. The result is the carrier illustrated in Fig. 1 which possesses a cage ring 10 and four cage arm parts 13 spaced apart from the cage ring 10. The strip portions 22 are bent in such a manner relative to the central portion 22 that the mounting holes 14 in

each of the strip portions 23 overlies and is aligned with one of the mounting holes 12 in the central portion 22.

One of the differences between the manufacturing method at issue here and the disclosure in *Heinrich et al.* is that the method of the present invention involves manufacturing the carrier by closing off the opening of the cup-shaped material to integrally form a pair of one-piece ring-shaped flanges and the joints. That is, instead of forming the carrier by bending four separate strip portions to form the four cage arm parts 133 as in *Heinrich et al.*, the method at issue here comprises closing off the opening of a cup-shaped material to integrally form a pair of one-piece ring-shaped flanges and joints connecting the two ring-shaped flanges.

To better set forth this distinction, Claim 7 has been amended to recite a method of manufacturing a carrier that is adapted to rotatably support rotating bodies between a pair of one-piece ring-shaped flanges, wherein the method comprises forming material into the shape of a cup having an opening, and closing off the opening of the cup so that a pair of one-piece ring-shaped flanges opposed to each other and joints connecting the one-piece ring-shaped flanges are integrally formed. The claimed method recited in Claim 7 is distinguishable over the disclosure contained in *Heinrich et al.* because the method disclosed in *Heinrich et al.* does not involve integrally forming two opposing one-piece ring-shaped flanges and joints connecting the one-piece ring-shaped flanges. It is thus respectfully submitted that the claimed method recited in Claim 7 is patentably distinguishable over the disclosure contained in *Heinrich et al.*

The Official Action addresses independent Claims 20 and 28 by relying on the disclosure in *Heinrich et al.* considered together with the disclosure in U.S. Patent

No. 1,931,163 to *Kranz et al.* This rejection is respectfully traversed for at least the following reasons.

As the Official Action correctly notes, *Heinrich et al.* lacks disclosure of a method of manufacturing a carrier that involves preparing a tubular member and closing off both end openings of the tubular material so that a pair of flanges opposed to each other and joints connecting the flanges are integrally formed as recited in Claim 20. Similarly, the method described in *Heinrich et al.* does not involve preparing a tubular material having a tubular wall surface, and bulging the wall surface at the axial center of the tubular material radially outwardly so that a pair of flanges opposed to each other and joints connecting the flanges are integrally formed as set forth in Claim 28.

To make up for these deficiencies, the Official Action relies upon the disclosure contained in *Kranz et al.* This document describes a method of making hub shells for wire wheels and similar tubular articles of varying diameter. *Kranz et al.* is specifically concerned with providing a method in which the metal in a single tubular blank can be worked to form articles such as wire wheels that possess a varying diameter. The method described in *Kranz et al.* involves forming a substantially flat and generally rectangular blank into a circular form to provide an open ended hub as shown in Fig. 2, and heating the ends of the hub while bringing the ends together as shown in Fig. 3 to produce an upset weld 2. Next, as illustrated in Fig. 6, the diameter of the tube is enlarged from one end 3 of the tube to an intermediate portion 4 to form a generally conical portion 6. The portion of the tube adjoining the conical portion 6 rapidly decreases in diameter to the tubular portion 5 which possesses the same diameter as the original tubular article. The end of the

conical portion 6 is then curled and rolled inwardly as illustrated in Fig. 7, followed by flanging the portion 7 inwardly as depicted in Fig. 8. Thereafter, the annular portion 9 of the tubular element is shrunk adjacent the enlarged portion 4, with the inner periphery of the inwardly directed flange 8 then being flanged out into an axially extending flange 11 as shown in Fig. 10. It is thus seen that *Kranz et al.* proposes a rather complicated series of steps to form the varying diameter wire wheel hub shell.

For a number of reasons, it is respectfully submitted that it would not have been obvious to one of ordinary skill in the art to utilize the method disclosed in *Kranz et al.* to manufacture the carrier described in *Heinrich et al.*

First, the disclosure in *Kranz et al.* is specifically directed to the manufacture of hub shells for wire wheels and similar tubular articles of varying diameter for purposes of allowing such articles, which were previously made from a number of separate pieces, to be formed from a single piece of metal. The carrier disclosed in *Heinrich et al.* is not a hub shell for wire wheels or a similar tubular article of varying diameter. Thus, the disclosure in *Kranz et al.* has little application to the fabrication of gear train planet carriers such as disclosed in *Heinrich et al.*

In addition, *Kranz et al.* proposes a method for forming wire wheel hub shells or similar tubular articles of varying diameter that does away with the need for fabricating such articles from a number of separate pieces. The method described in *Heinrich et al.* for producing the disclosed gear train planet carrier is produced by using a single-piece shaped flat sheet metal blank. Thus, the reason disclosed in *Kranz et al.* for utilizing the disclosed method (i.e., eliminating the need for a number of separate pieces to form the wire wheel hub shell or similar tubular article of varying diameter) simply does not exist in the context of the gear train planet carrier

disclosed in *Heinrich et al.* Stated differently, because *Heinrich et al.* discloses a method of manufacturing a carrier from a single-piece shaped flat sheet metal blank, and the disclosed method is significantly more simple in implementation than the method described in *Kranz et al.*, one of ordinary skill in the art would not have been motivated to utilize the more complicated and time consuming method disclosed in *Kranz et al.* to produce the carrier described in *Heinrich et al.*

In addition, *Heinrich et al.* is specifically concerned with providing a particular construction for a gear train planet carrier that allows the planet carrier to be formed from a stamped shaped flat sheet metal blank that is twice folded. At the bottom of column 1 and the top of column 2, *Heinrich et al.* describes that the objective of the disclosed carrier is to reduce the costs of manufacture by stamping a shaped flat sheet metal blank from a sheet blank and then folding the metal blank twice. Considering that *Heinrich et al.'s* objective is to reduce manufacturing costs and simplify the manufacturing operation, it would not have been obvious to utilize the method disclosed *Kranz et al.* to produce the carrier described in *Heinrich et al.* The method disclosed in *Kranz et al.* involves numerous forming steps which significantly complicate the manufacturing operation and increase the time and cost associated with manufacturing the article of varying diameter. Thus, the method disclosed in *Kranz et al.* is directly contrary to *Heinrich et al.'s* objective of providing a simplified method for producing a carrier at a relatively low manufacturing cost. This further supports the conclusion that one of ordinary skill in the art would not have been motivated to utilize the method described in *Kranz et al.* to manufacture the gear train planet carrier described in *Heinrich et al.*

For at least the reasons set forth above, it is respectfully submitted that the claimed method recited in independent Claims 20 and 28 is also patentable distinguishable over a combination of the disclosures in *Heinrich et al.* and *Kranz et al.*

New dependent Claims 33-37 define additional distinguishing characteristics associated with the claimed method. For example, Claims 33, 35 and 37 recite that the joints connecting the one-piece ring-shaped flanges are curved in a circumferential direction of the carrier such as illustrated in Fig. 1. In addition, Claims 34 and 36 clarify that each of the flanges is a one-piece ring-shaped flange which lies in a plane.

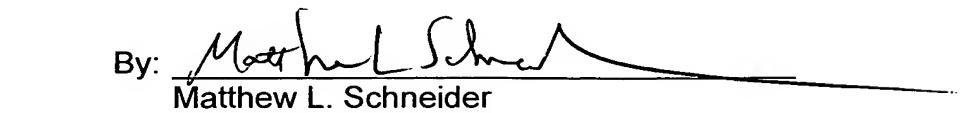
Early and favorable consideration of this application is respectfully

Should any questions arise in connection with this application or should the Examiner believe that a telephone conference with the undersigned would be helpful in resolving any remaining issues pertaining to this application the undersigned respectfully requests that he be contacted at the number indicated below.

Respectfully submitted,

BUCHANAN INGERSALL PC

Date: October 28, 2005

By: 

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